

IN THE CLAIMS

1. (currently amended) A system comprising a power source and a driving motor, the power source for supplying electrical power to a ~~the~~ driving motor, said driving motor drawing electrical power at different rates, the power source comprising:

a first rechargeable energy battery having a first total impedance for storing electrical energy and providing electrical power to the ~~electrical~~ driving motor at a first range of power rates;

a second rechargeable power battery having a second total impedance, less than the first total impedance, for storing electrical energy and providing electrical power to the ~~electrical~~ driving motor at a second range of power rates;

wherein electrical energy stored in the energy battery is provided to the driving motor in combination with electrical energy stored in the power battery; and

wherein the energy battery substantially continuously recharges the power battery with any excess power.

2. (original) The power source as defined in claim 1 further comprising a battery controller capable of controlling the substantially continuous recharging of the power battery with electrical energy from the energy battery not required by the driving motor.

3. (original) The power source as defined in claim 2 wherein the battery controller controls the substantially continuous recharging of the power battery by controlling the electrical energy passing through a first connection from the energy battery to the power battery.

4. (original) The power source as defined in claim 2 wherein the battery controller utilizes inherent control of the energy battery and power battery, such that the battery controller initially connects the power battery and energy battery in parallel.

5. (currently amended) The power source as defined in claim 4 wherein the controller initially connects each of the power battery, energy battery and ~~electrical~~driving motor in parallel.
6. (original) The power source as defined in claim 1 wherein the power battery and energy battery have a range of overlapping nominal voltages.
7. (original) The power source as defined in claim 6 wherein the power battery and energy battery are connected in parallel with the driving motor.
8. (original) The power source as defined in claim 7 wherein the power battery consists of at least one bank of 8 lead acid batteries in series, each lead acid battery having a nominal voltage of 10.5 volts to 13 volts and the energy battery consists of at least one bank of 27 lithium ion cells connected in series, each lithium ion cell having a nominal voltage of 3 volts to 4.2 volts.
9. (original) The power source as defined in claim 1 wherein the second total impedance is between 10% to 60% of the first total impedance.
10. (original) The power source as defined in claim 9 wherein the second total impedance is between 35% to 50% of the first total impedance.
11. (original) The power source as defined in claim 4 further comprising a switch between the energy battery and the power battery; and
wherein the controller initially connects the power battery to the energy battery in parallel by controlling the switch along the first connection.
12. (original) The power source as defined in claim 1 wherein the energy battery is a lithium based battery selected from the group consisting of non-aqueous lithium-ion batteries,

lithium air batteries and polymer lithium ion batteries, and, the power battery is a lead-acid battery.

13. (original) The power source as defined in claim 1 wherein the energy battery is a non-aqueous polymer lithium battery pack.

14. (original) The power source as defined in claim 13 wherein the power source has a casing and a portion of the casing is occupied by the non-aqueous polymer lithium battery pack.

15. (currently amended) The power source as defined in claim 5 wherein the driving motor drives a the vehicle ~~within which the power battery and energy battery are contained and,~~ wherein the controller can be contained within or removed from the vehicle.

16. (currently amended) An energy storage device for storing electrical energy to be delivered to an electrical load, said energy storage device comprising:

a rechargeable battery having a first energy density and electrically connectable to an external power source;

a rechargeable electrical device having a second energy density, less than the first energy density, said second battery being electrically connectable to the first battery and electrically connectable to the load;

wherein, during operation, the rechargeable electrical device is connected in parallel to each of the load and the battery, and wherein the rechargeable electrical device supplies electrical energy to the load while the battery substantially continuously recharges the rechargeable electrical device and supplies electrical energy to the load; and

wherein the battery is periodically connected to the external source for recharging as required; and

wherein the rechargeable battery comprises an electrochemical cell of a type selected from the following types: non-aqueous lithium ion, polymer lithium ion, lithium air and sodium-sulfur.

17. (currently amended) The energy storage device as defined in claim 16 wherein the rechargeable battery is selected from the group consisting of non-aqueous lithium-ion batteries, polymer-lithium-ion batteries and sodium-sulfur batteries comprises an electrochemical cell of the non-aqueous lithium ion type.

18. (currently amended) The energy storage device as defined in claim 16 wherein the rechargeable electrical device is selected from the group consisting of high-rate lithium batteries, lithium-ion batteries, high rate nickel aqueous batteries and, ~~lead-acid batteries, nickel alloy hybrid batteries, nickel metal batteries and nickel-cadmium batteries.~~

19. (currently amended) The energy storage device as defined in claim 16 wherein the rechargeable battery comprises ~~an energy-rechargeable battery and the rechargeable electrical device comprises a power rechargeable battery for substantially continuously recharging the energy-rechargeable battery~~ an electrochemical cell of the polymer lithium ion type.

20. (original) The energy storage device as defined in claim 16 wherein the rechargeable battery having a first total impedance and the rechargeable electrical device having a second total impedance less than the first total impedance.

21. (original) The energy storage device as defined in claim 20 wherein the second total impedance is between 10% to 60% of the first total impedance.

22. (original) The energy storage device as defined in claim 19 wherein the energy battery is a lithium based battery and the power battery is a lead-acid battery.

23. (original) The energy storage device as defined in claim 19 wherein the electrical energy stored in the energy battery is supplied to the electrical load at a first range of power rates and electrical energy stored in the power battery is supplied to the electrical load at a

second range of power rates, the second range of power rates being greater than the first range of power rates.

24. (original) The electrical energy storage device as defined in claim 23 further comprising a battery controller for initially connecting the power battery, energy battery and load in parallel; and

wherein the electrical energy from the energy battery and power battery are combined and provided at a range of power rates which include a sum of the first range of power rates and the second range of power rates.

25. (original) The electrical energy storage device as defined in claim 19 wherein the power battery is electrically connectable to an external source for recharging; and

wherein the power battery is electrically connectable to the external source for recharging when the energy battery requires recharging.

26. (currently amended) The electrical energy storage device as defined in claim ~~25~~16 wherein the ~~energy battery and the power battery are connected to the external source through a recharger~~rechargeable battery comprises an electrochemical cell of the lithium air type.

27. (currently amended) The electrical energy storage device as defined in claim ~~19~~16 wherein the ~~electrical load is a driving motor in a vehicle within which the energy battery and power battery are contained; and~~

~~wherein the power battery is located in the vehicle nearer to the electrical load than the energy battery~~rechargeable battery comprises an electrochemical cell of the sodium sulfur type.

28. (currently amended) A method for storing electrical energy for an electrical load drawing electrical power at different rates, said method comprising the steps of:

charging a non-portable rechargeable energy battery having a first total impedance;

charging a rechargeable power battery having a second total impedance, less than the first total impedance;

supplying electrical energy from the energy battery and the power battery to the electrical load;

substantially continuously recharging the power battery from the energy battery with electrical energy not required by the electrical load.

29. (currently amended) A method as defined in claim 28 further comprising: ~~connecting the energy battery in parallel with the power battery~~ the further step of:

securing the non-portable rechargeable energy batter to an electric vehicle.

30. (currently amended) A method as defined in claim 28 ~~29~~ wherein the electrical load is a driving motor in ~~a~~ the vehicle, and, the rechargeable energy battery and the rechargeable power battery are contained in the vehicle ~~with the power battery located nearer the driving motor than the energy battery.~~

31. (original) A method as defined in claim 30 further comprising:
periodically recharging the energy battery, from an external fixed electrical source, when the energy capacity of the energy battery falls below a threshold.

32. (currently amended) A method as defined in claim 28 wherein the rechargeable energy battery is selected from the group consisting of non-aqueous lithium-ion batteries, lithium air batteries, polymer lithium-ion batteries and sodium-sulfur batteries; ~~and~~
~~wherein the rechargeable power battery is selected from the group consisting of lead-acid batteries, high-rate lithium batteries, lithium ion batteries, high-rate nickel aqueous batteries, nickel metal batteries, nickel alloy hybrid bearing batteries and nickel cadmium batteries.~~

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47. (previously presented)
a vehicle housing;

A vehicle comprising:

a motor structured and located so that operation of the motor can drive the vehicle into motion;

a first battery having a first energy density, with the first battery being rechargeable;

a second battery having a second energy density, with the second energy density being greater than the first energy density; and

a battery connection device structured and located to electrically connect at least the first battery to the motor and the second battery;

wherein the motor, the first battery and the second battery are all fixed to the vehicle housing so that the first battery is spatially proximate to the motor and the second battery is spatially remote from the motor.

48. (previously presented) The vehicle of claim 47 wherein:
the first battery comprises at least two separate battery housings electrically connected in series; and
the second battery comprises at least two separate battery housings electrically connected in series.

49. (previously presented) The vehicle of claim 47 wherein the second battery is a lithium ion battery.

50. (previously presented) The system of claim 42 wherein:
the vehicle requires a burst of power to start from a stationary position; and
a remaining capacity of the first battery decreases in a step corresponding to the required burst of power.

51. (new) A vehicle comprising:
a vehicle housing;

a motor structured and located so that operation of the motor can drive the vehicle into motion, with the motor comprising a regenerative braking portion structured to supply electrical power through regenerative braking;

a first battery having a first energy density, with the first battery being rechargeable;

a second battery having a second energy density, with the second energy density being greater than the first energy density;

a battery connection device structured and located to electrically connect each of the first battery and the second battery to the motor and the second battery is parallel, whereby the first and second batteries can both supply electrical energy to the motor through the parallel connection, and whereby the first and second batteries can both receive electrical energy from regenerative braking portion of the motor through the parallel connection.